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EXAMINER

RAO, ANAND SHASHIKANT

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 12/02/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/769,309

Applicant(s)

FURUKAWA ET AL.

Examiner

Andy S. Rao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a) because figure 1 fails to show the encoder parameter 134 arrow as an input into the quantization block 14 in order to vary the macroblock step size as described in the specification on page 24, lines 10-15. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Information Disclosure Statement

2. The information disclosure statements (IDS) submitted on 1/26/01 and 10/25/01 listing related applications #09/925,567 and #10/183,516 has been considered by the Examiner, but has not been listed on an initialed US-PTO 1449 in order to preserve the confidentiality of those copending applications.

Specification

3. The disclosure is objected to because of the following informalities:

A). Page 15, line 11, "In FIG. 4A" should be "In FIG. 4B."

B). Page 17, line 4, "b" in the equation should be "d".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Boice et al., (hereinafter referred to as “Boice”).

Boice discloses a video encoding apparatus (Boice: figure 5), comprising: a feature amount computation section (Boice: column 7, lines 30-40) configured to divide an input video signals into a plurality of scenes (Boice: column 10, lines 14-55) each comprising at least one temporally continuously frame (Boice: figure 2), and compute a statistical feature amount for each scene (Boice: column 12, lines 7-20); an encoding parameter generator section configured

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to generate an encoding parameter (Boice: column 11, lines 1-40) for each scene based on the statistical feature amount computed by said feature amount computation section (Boice: column 10, lines 55-65); a number of generated bits prediction section configured to predict the number of bits to be generated when the input video signal is encoded using the encoding parameter generated by said encoding parameter generator section (Boice: column 12, lines 60-65); an encoding parameter correcting section configured to correct the encoding parameter based on a result of the prediction of the number of generated bits which is obtained by said number of generated bits prediction section (Boice: column 13, lines 10-67); an encoder section configured to encode the input video signal using the corrected encoding parameter and generate an encoded bit stream (Boice: column 12, lines 1-5); and an output section configured to output the encoded bit stream generated by said encoded section as an encoded output (Boice: column 14, lines 35-50), as in claim 1.

Regarding claim 2, Boice discloses that the encoding parameter generator section includes a setting unit configured to set a weight to a quantization step size for macroblocks (Boice: column 13, lines 49-65; column 15, lines 14-24), as specified.

Regarding claims 3-4, Boice discloses that the classification unit is configured to classify scenes into a plurality of scene types (Boice: column 10, lines 40-60), as in the claims.

Regarding claims 5-7, Boice discloses that the feature amount computation section is configured to extract the number, distribution, and size of motion vectors (Boice: column 10, lines 10-15; column 12, lines 12-15), a motion compensation residual error (Boice: column 7, lines 50-53; column 8, lines 1-4), and luminance and chrominance variance (Boice: column 6, lines 65-67; column 9, lines 65-67; column 10, lines 1-10) as features amounts as in the claims.

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Regarding claim 8, Boice discloses calculating the number of generated bits for each scene (Boice: column 13, lines 5-10 & 30-37), as specified.

Regarding claim 9, Boice discloses correcting a bit rate for each scene (Boice: column 13, lines 38-67), as in the claim.

Regarding claim 10, Boice discloses that the encoder section is configured to receive a bit and frame rate which are specified for each scene (Boice: column n 12, lines 60-65), as in the claim.

Regarding claim 11, Boice discloses a determination unit configured to receive a bit rate specified for each scene as the corrected encoding parameter, and determine the quantization step size (Boice: column 11, lines 5-50), as in the claim.

Regarding claim 12, Boice discloses a determination unit for determining a second frame as a delimiter for separating the scenes (Boice: column 10, lines 13-34), as in the claim.

Regarding claims 13-14, Boice discloses that the feature amount computation section is configured to compute motion vectors of the macroblocks (Boice: column 10, lines 10-15), as in the claims.

Boice discloses a video encoding method (Boice: figure 9), comprising: dividing an input video signals into a plurality of scenes (Boice: column 10, lines 14-55) each comprising at least one temporally continuously frame (Boice: figure 2); computing a statistical feature amount for each scene (Boice: column 12, lines 7-20); encoding parameter (Boice: column 11, lines 1-40) for each scene based on the statistical feature amount computed by said feature amount computation section (Boice: column 10, lines 55-65); predicting the number of bits to be generated when the input video signal is encoded using the encoding parameter generated by said

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encoding parameter generator section (Boice: column 12, lines 60-65); correcting the encoding parameter based on a result of the prediction of the number of generated bits which is obtained by said number of generated bits prediction section (Boice: column 13, lines 10-67); encoding the input video signal using the corrected encoding parameter and generate an encoded bit stream (Boice: column 12, lines 1-5); outputting the encoded bit stream generated by said encoded section as an encoded output (Boice: column 14, lines 35-50), as in claim 15.

Regarding claim 16, Boice includes a setting unit configured to set a weight to a quantization step size for macroblocks (Boice: column 13, lines 49-65; column 15, lines 14-24), as specified.

Regarding claims 17-18, Boice discloses classifying scenes into a plurality of scene types (Boice: column 10, lines 40-60), as in the claims.

Boice discloses a recording medium having a computer program recorded therein for encoding an input video signal (Boice: column 14, lines 60-67), said computer program comprising: instruction means for instructing the computer to divide an input video signals into a plurality of scenes (Boice: column 10, lines 14-55) each comprising at least one temporally continuously frame (Boice: figure 2), and compute a statistical feature amount for each scene (Boice: column 12, lines 7-20); instruction means for instructing the computer to generate an encoding parameter (Boice: column 11, lines 1-40) for each scene based on the statistical feature amount computed by said feature amount computation section (Boice: column 10, lines 55-65); instruction means for instructing the computer to predict the number of bits to be generated when the input video signal is encoded using the encoding parameter generated by said encoding parameter generator section (Boice: column 12, lines 60-65); instruction means for instructing

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the computer to correct the encoding parameter based on a result of the prediction of the number of generated bits which is obtained by said number of generated bits prediction section (Boice: column 13, lines 10-67); instruction means for instructing the computer to encode the input video signal using the corrected encoding parameter and generate an encoded bit stream (Boice: column 12, lines 1-5); instruction means for instructing the computer to encoded the encoded bit stream generated by said encoded section as an encoded output (Boice: column 14, lines 35-50), as in claim 19.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bagai discloses a constant bit rate control in a video coder by pre-analysis of a slice of the pictures. Ribas-Corbera discloses a video encoder and method for adjusting quantization in real-time.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy S. Rao whose telephone number is (703)-305-4813. The examiner can normally be reached on Monday-Friday 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris S. Kelley can be reached on (703)-305-4856. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-305-4700.

Andy S. Rao

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Primary Examiner
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ANDY DAO
PRIMARY EXAMINER

asr

November 26, 2003